

SEQUENCE LISTING

<110> Khleif, Samir N.
Berzofsky, Jay A.

<120> METHODS AND COMPOSITIONS FOR CO-STIMULATION OF
IMMUNOLOGICAL RESPONSES TO PEPTIDE ANTIGENS

<130> 15280-415100US

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<150> 60/189,396

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<160> 61

<170> PatentIn Ver. 2.1

<210> 1

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 1

Glu	Gln	Met	His	Glu	Asp	Ile	Ile	Ser	Leu	Trp	Asp	Gln	Ser	Leu	Lys
1				5					10					15	

Pro	Cys	Val	Lys	Arg	Ile	Gln	Arg	Gly	Pro	Gly	Arg	Ala	Phe	Val	Thr
			20					25						30	

Ile	Gly	Lys
		35

<210> 2

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 2

Lys Gln Ile Ile Asn Met Trp Gln Glu Val Gly Lys Ala Met Tyr Ala
1 5 10 15

Pro Pro Ile Ser Gly Gln Ile Arg Arg Ile Gln Arg Gly Pro Gly Arg
20 25 30

Ala Phe Val Thr Ile Gly Lys
35

<210> 3

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 3

Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile
1 5 10 15

Glu Pro Leu Gly Val Ala Pro Thr Arg Ile Gln Arg Gly Pro Gly Arg
20 25 30

Ala Phe Val Thr Ile Gly Lys
35

<210> 4

<211> 48

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 4

Ala Val Ala Glu Gly Thr Asp Arg Val Ile Glu Val Val Gln Gly Ala
1 5 10 15

Tyr Arg Ala Ile Arg His Ile Pro Arg Arg Ile Arg Gln Gly Leu Glu
20 25 30

Arg Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile Gly Lys
 35 40 45

<210> 5

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
 ANTIGEN

<400> 5

Asp Arg Val Ile Glu Val Val Gln Gly Ala Tyr Arg Ala Ile Arg His
 1 5 10 15

Ile Pro Arg Arg Ile Arg Gln Gly Leu Glu Arg Arg Ile Gln Arg Gly
 20 25 30

Pro Gly Arg Ala Phe Val Thr Ile Gly Lys
 35 40

<210> 6

<211> 30

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: HIV PEPTIDE
 ANTIGEN

<400> 6

Asp Arg Val Ile Glu Val Val Gln Gly Ala Tyr Arg Ala Ile Arg Arg
 1 5 10 15

Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile Gly Lys
 20 25 30

<210> 7

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 7

Ala Gln Gly Ala Tyr Arg Ala Ile Arg His Ile Pro Arg Arg Ile Arg

1

5

10

15

Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile Gly Lys

20

25

30

<210> 8

<211> 35

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 8

Glu Gln Met His Glu Asp Ile Ile Ser Leu Trp Asp Gln Ser Leu Lys

1

5

10

15

Pro Cys Val Lys Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Thr

20

25

30

Thr Lys Asn

35

<210> 9

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 9

Lys Gln Ile Ile Asn Met Trp Gln Glu Val Gly Lys Ala Met Tyr Ala

1

5

10

15

Pro Pro Ile Ser Gly Gln Ile Arg Arg Ile His Ile Gly Pro Gly Arg

20

25

30

Ala Phe Tyr Thr Thr Lys Asn
35

<210> 10

<211> 39

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 10

Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile
1 5 10 15

Glu Pro Leu Gly Val Ala Pro Thr Arg Ile His Ile Gly Pro Gly Arg
20 25 30

Ala Phe Tyr Thr Thr Lys Asn
35

<210> 11

<211> 48

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 11

Ala Val Ala Glu Gly Thr Asp Arg Val Ile Glu Val Val Gln Gly Ala
1 5 10 15

Tyr Arg Ala Ile Arg His Ile Pro Arg Arg Ile Arg Gln Gly Leu Glu
20 25 30

Arg Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Lys Asn
35 40 45

<210> 12
<211> 43
<212> PRT
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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 12

Asp Arg Val Ile Glu Val Val Gln Gly Ala Tyr Arg Ala Ile Arg His
1 5 10 15

Ile Pro Arg Arg Ile Arg Gln Gly Leu Glu Arg Arg Ile His Ile Gly
20 25 30

Pro Gly Arg Ala Phe Tyr Thr Thr Lys Ile Asn
35 40

<210> 13
<211> 30
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 13

Asp Arg Val Ile Glu Val Val Gln Gly Ala Tyr Arg Ala Ile Arg Arg
1 5 10 15

Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Lys Asn
20 25 30

<210> 14
<211> 31
<212> PRT
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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 14

Ala Gln Gly Ala Tyr Arg Ala Ile Arg His Ile Pro Arg Arg Ile Arg

1	5	10	15
Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Lys Asn			
20	25	30	

<210> 15
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Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile Gly Lys
1 5 10 15

<210> 16
 <211> 10
 <212> PRT
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<220>
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<400> 16
Arg Gly Pro Gly Arg Ala Phe Val Thr Ile
1 5 10

<210> 17
 <211> 10
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<220>
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 ANTIGEN

<400> 17
Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr
1 5 10

<210> 18
 <211> 10
 <212> PRT
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 ANTIGEN

 <400> 18
 Ile Gly Pro Gly Arg Ala Phe Tyr Ala Thr
 1 5 10

<210> 19
 <211> 10
 <212> PRT
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 <220>
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 ANTIGEN

 <400> 19
 Lys Gly Pro Gly Arg Val Ile Tyr Ala Thr
 1 5 10

<210> 20
 <211> 10
 <212> PRT
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 <400> 20
 Ile Gly Pro Gly Arg Ala Phe His Thr Thr
 1 5 10

<210> 21
 <211> 10
 <212> PRT
 <213> Artificial Sequence

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<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 21

Ile Gly Pro Gly Arg Thr Leu Tyr Ala Arg
1 5 10

<210> 22

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 22

Leu Gly Pro Gly Arg Val Trp Tyr Thr Thr
1 5 10

<210> 23

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 23

Ile Gly Pro Gly Arg Ala Phe Arg Thr Arg
1 5 10

<210> 24

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 24

Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile Gly Lys
1 5 10 15

<210> 25
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<400> 25
 Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Lys Asn
 1 5 10 15

<210> 26
 <211> 15
 <212> PRT
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<220>
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<400> 26
 Ser Ile Thr Lys Gly Pro Gly Arg Val Ile Tyr Ala Thr Gly Gln
 1 5 10 15

<210> 27
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 <212> PRT
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<400> 27
 Ser Ile His Ile Gly Pro Gly Pro Ala Phe Tyr Ala Thr Gly Asp
 1 5 10 15

<210> 28
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<400> 28
Ser Leu Ser Ile Gly Pro Gly Arg Ala Phe Arg Thr Arg Glu Ile
1 5 10 15

<210> 29
<211> 15
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<400> 29
Ser Ile Ser Ile Gly Pro Gly Arg Ala Phe Phe Ala Thr Thr Asp
1 5 10 15

<210> 30
<211> 15
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<220>
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<400> 30
Ser Ile Tyr Ile Gly Pro Gly Arg Ala Phe His Thr Thr Gly Arg
1 5 10 15

<210> 31
<211> 15
<212> PRT
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<220>
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ANTIGEN

<400> 31

Gly Ile Ala Ile Gly Pro Gly Arg Thr Leu Tyr Ala Arg Glu Lys
 1 5 10 15

<210> 32

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
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<400> 32

Arg Val Thr Ile Gly Pro Gly Arg Val Trp Tyr Thr Thr Gly Glu
 1 5 10 15

<210> 33

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
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<400> 33

Ser Ile Arg Ile Gly Pro Gly Lys Val Phe Thr Ala Lys Gly Gly
 1 5 10 15

<210> 34

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
 ANTIGEN

<400> 34

Gly Ile His Phe Gly Pro Gly Gln Ala Leu Tyr Thr Thr Gly Ile
 1 5 10 15

<210> 35

<211> 14

<212> PRT
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<220>
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 ANTIGEN

<400> 35
 Ser Thr Pro Ile Gly Leu Gly Gln Met Tyr Thr Thr Arg Gly
 1 5 10

<210> 36
 <211> 15
 <212> PRT
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<220>
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<400> 36
 Ser Thr Pro Ile Gly Leu Gly Gln Ala Leu Tyr Thr Thr Arg Ile
 1 5 10 15

<210> 37
 <211> 15
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<220>
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<400> 37
 Arg Thr Pro Thr Gly Leu Gly Gln Ser Leu Tyr Thr Thr Arg Ser
 1 5 10 15

<210> 38
 <211> 14
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<220>
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<400> 38
 Gln Ile Asp Ser Lys Leu Arg Glu Gln Phe Gly Asn Asn Lys
 1 5 10

<210> 39
 <211> 20
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<220>
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<400> 39
 Gly Ser Asp Thr Ile Thr Leu Pro Cys Arg Ile Lys Gln Phe Ile Asn
 1 5 10 15

Met Trp Gln Glu
 20

<210> 40
 <211> 15
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<220>
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<400> 40
 Asn Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn
 1 5 10 15

<210> 41
 <211> 15
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<220>
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<400> 41
 Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn

1

5

10

15

<210> 42

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 42

Arg Ile Val Glu Leu Leu Gly Arg Arg Gly Trp Glu Ala Leu Lys
1 5 10 15

<210> 43

<211> 25

<212> PRT

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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 43

Ile Glu Thr Val Pro Val Lys Leu Lys Pro Gly Met Asp Gly Pro Lys
1 5 10 15

Val Lys Gln Trp Pro Leu Thr Glu Glu
20 25

<210> 44

<211> 25

<212> PRT

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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 44

Ala Ile Phe Gln Ser Ser Met Thr Lys Ile Leu Glu Pro Phe Arg Lys
1 5 10 15

Gln Asn Pro Asp Ile Val Ile Tyr Gln

<210> 45
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 <212> PRT
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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
 ANTIGEN

<400> 45

Asn Pro Asp Ile Val Ile Tyr Gln Tyr Met Asp Asp Leu Tyr Val Gly
 1 5 10 15

Ser Asp Leu Glu Ile Gly Gln His Arg
 20 25

<210> 46
 <211> 25
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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
 ANTIGEN

<400> 46

Asp Leu Glu Ile Gly Gln His Arg Thr Lys Ile Glu Glu Leu Arg Gln
 1 5 10 15

His Leu Leu Arg Trp Gly Leu Thr Thr
 20 25

<210> 47
 <211> 25
 <212> PRT
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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
 ANTIGEN

<400> 47

Pro Leu Thr Glu Glu Ala Glu Leu Glu Leu Ala Glu Asn Arg Glu Ile

1 5 10 15
 Leu Lys Glu Pro Val His Gly Val Tyr
 20 25

<210> 48
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 <212> PRT
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 ANTIGEN

<400> 48
 Glu Ile Gln Lys Gln Gly Gln Trp Thr Tyr Gln Ile Tyr Gln
 1 5 10 15

Glu Pro Phe Lys Asn Leu Lys Thr Gly
 20 25

<210> 49
 <211> 9
 <212> PRT
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<220>
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<400> 49
 Asn Pro Asp Ile Val Ile Tyr Gln Tyr
 1 5

<210> 50
 <211> 9
 <212> PRT
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<400> 50
 Phe Pro Val Arg Pro Gln Val Pro Leu

1

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<210> 51

<211> 9

<212> PRT

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<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
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<400> 51

Thr Pro Pro Leu Val Lys Leu Trp Tyr

1

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<210> 52

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
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<400> 52

Glu Pro Ile Val Gly Ala Glu Thr Phe Tyr

1

5

10

<210> 53

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 53

Ser Pro Ala Ile Phe Gln Ser Ser Met

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<210> 54

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 54

Tyr Pro Leu Thr Phe Gly Trp Cys Phe
1 5

<210> 55

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 55

Glu Pro Ile Val Gly Ala Glu Thr Phe
1 5

<210> 56

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 56

Val Pro Leu Asp Lys Asp Phe Arg Lys Tyr
1 5 10

<210> 57

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 57
Arg Pro Gln Val Pro Leu Arg Pro Met Thr Tyr
1 5 10

<210> 58
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 58
Ile Pro Leu Thr Glu Glu Ala Glu Leu
1 5

<210> 59
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 59
Asp Pro Asn Pro Gln Glu Val Val Leu
1 5

<210> 60
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HIV PEPTIDE
ANTIGEN

<400> 60
Arg Pro Ile Val Ser Thr Gln Leu Leu
1 5

<210> 61

<211> 9
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: HIV PEPTIDE
 ANTIGEN

 <400> 61
 Leu Pro Cys Arg Ile Lys Gln Ile Ile
 1 5

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